

What is claimed is:

1. A multiple input diversity decoding apparatus, comprising:

a first input line;

a second input line;

5 a first diversity decoder, comprising;

a first partial decoder, coupled with said first input line;

a second partial decoder, coupled with said first input line,
said second partial decoder being communicatively coupled with
said first partial decoder; and

10 said first partial decoder and said second partial decoder
being configured to perform an iterative decoding of information
input to said first diversity decoder via said first input line; and

a second diversity decoder, communicatively coupled with said first
diversity decoder, comprising;

15 a third partial decoder, coupled with said second input line;

a fourth partial decoder, coupled with said second input line,
said fourth partial decoder being communicatively coupled with said
third partial decoder; and

said third partial decoder and said fourth partial decoder
being configured to perform an iterative decoding of information
input to said second diversity decoder via said second input line;
and

5 wherein said first diversity decoder and said second diversity
decoder are configured to perform an iterative decoding of information
input into the multiple input diversity decoder apparatus via said first input
line and said second input line.

10 2. The multiple input diversity decoding apparatus of claim 1, further
comprising:

 a first antenna and radio frequency receiver apparatus coupled with said
first input line to receive radio frequency signals and pass received signals to
said first diversity decoder via said first input line.

15 3. The multiple input diversity decoding apparatus of claim 2, further
comprising:

 a second antenna and radio frequency receiver apparatus coupled with
said second input line to receive radio frequency signals and pass received
20 signals to said second diversity decoder via said second input line.

4. The multiple input diversity decoding apparatus of claim 1, wherein said first diversity decoder further comprises:

a fifth partial decoder, coupled with said first input line, wherein said fifth partial decoder is communicatively coupled with said first partial decoder; and

said first partial decoder, said second partial decoder and said fifth partial decoder being configured to perform an iterative decoding of information input to said first diversity decoder via said first input line.

5. The multiple input diversity decoding apparatus of claim 4, wherein said fifth partial decoder is also communicatively coupled with said second partial decoder.

6. The multiple input diversity decoding apparatus of claim 4, wherein said second diversity decoder further comprises:

a sixth partial decoder, coupled with said second input line, said sixth partial decoder being communicatively coupled with said third partial decoder; and

said third partial decoder, said fourth partial decoder and said sixth partial decoder being configured to perform an iterative decoding of information input to said second diversity decoder via said second input line.

5

7. The multiple input diversity decoding apparatus of claim 6, wherein said sixth partial decoder is also communicatively coupled with said fourth partial decoder.

10 8. The multiple input diversity decoding apparatus of claim 1, further comprising:

a third input line;

a third diversity decoder, communicatively coupled with said second diversity decoder, comprising;

15 a fifth partial decoder, coupled with said third input line; and

a sixth partial decoder, coupled with said third input line, said sixth partial decoder being communicatively coupled with said fifth partial decoder;

wherein said fifth partial decoder and said sixth partial decoder are configured to perform an iterative decoding of information input to said third diversity decoder via said third input line; and

5 wherein said first diversity decoder, said second diversity decoder and said third diversity decoder are configured to perform an iterative decoding of information input into the multiple input diversity decoder apparatus via said first input line, said second input line and said third input line.

10 9. The multiple input diversity decoding apparatus of claim 8, wherein said third diversity decoder is also communicatively coupled with said first diversity decoder.

15 10. The multiple input diversity decoding apparatus of claim 8, further comprising:

 a seventh partial decoder, located in said first diversity decoder, wherein said seventh partial decoder is communicatively coupled with said second partial decoder; and

wherein said first partial decoder, said second partial decoder and said seventh partial decoder are configured to perform an iterative decoding of information input to said first diversity decoder via said first input line.

5 11. The multiple input diversity decoding apparatus of claim 10, further comprising:

an eighth partial decoder, located in said second diversity decoder, wherein said eighth partial decoder is communicatively coupled with said fourth partial decoder; and

10 wherein said third partial decoder, said fourth partial decoder and said eighth partial decoder are configured to perform an iterative decoding of information input to said second diversity decoder via said second input line.

12. The multiple input diversity decoding apparatus of claim 11, further comprising:

a ninth partial decoder, located in said third diversity decoder, wherein
5 said ninth partial decoder is communicatively coupled with said sixth partial decoder; and

wherein said fifth partial decoder, said sixth partial decoder and said ninth partial decoder are configured to perform an iterative decoding of information input to said third diversity decoder via said third input line.

10

13. A method for diversity decoding of multiple inputs, comprising the steps of:

receiving an information segment via a first input line;

receiving an information segment via a second input line, said step
5 of receiving an information segment via a second input line being
accomplished essentially simultaneously with said step of receiving an
information segment via a first input line;

performing an iterative decoding of the information segment
received via the first input line;

10 performing an iterative decoding of the information segment
received via the second input line, said step of performing an iterative
decoding of the information segment received via the second input line
being accomplished essentially simultaneously with said step of
performing an iterative decoding of the information segment received via
15 the first input line; and

performing an iterative decoding of information segments
determined via said step of performing an iterative decoding of the
information segment received via the first input line and said step of
performing an iterative decoding of the information segment received via
20 the second input line.

14. The method of claim 13, further comprising the step of receiving an information segment via a third input line, said step of receiving an information segment via a third input line being accomplished essentially simultaneously with
5 said step of receiving an information segment via a first input line.

15. The method of claim 14, further comprising the step of performing an iterative decoding of the information segment received via the third input line, said step of performing an iterative decoding of the information segment received
10 via the third input line being accomplished essentially simultaneously with said step of performing an iterative decoding of the information segment received via the first input line.

16. The method of claim 15, wherein the step of performing an iterative
15 decoding of information segments determined via said steps of performing an iterative decoding of the information segment received via the first input line and the second input line, further comprises performing an iterative decoding of information segments determined via said step of performing an iterative decoding of the information segment received via the third input line.

17. A multiple input diversity decoding apparatus, comprising:

a first input line;

a first partial decoder, coupled with said first input line;

a second partial decoder, coupled with said first input line, said
5 second partial decoder being communicatively coupled with said first
partial decoder;

a second input line;

a third partial decoder, coupled with said second input line, said
third partial decoder being communicatively coupled with said second
10 partial decoder; and

a fourth partial decoder, coupled with said second input line, said
fourth partial decoder being communicatively coupled with said third
partial decoder;

wherein said first partial decoder, said second partial decoder, said
15 third partial decoder and said fourth partial decoder are configured to
perform an iterative decoding of information input into the multiple input
diversity decoder apparatus via said first input line and said second input
line.

18. The multiple input diversity decoding apparatus according to claim 17, wherein said second partial decoder is also communicatively coupled with said fourth partial decoder.

5 19. The multiple input diversity decoding apparatus according to claim 18, wherein said first partial decoder is also communicatively coupled with said third partial decoder.

10 20. The multiple input diversity decoding apparatus according to claim 17, wherein said first partial decoder is also coupled with said second input line.

15 21. The multiple input diversity decoding apparatus according to claim 20, wherein said second partial decoder is also coupled with said second input line.

22. The multiple input diversity decoding apparatus according to claim 21, wherein said third partial decoder is also coupled with said first input line.

23. The multiple input diversity decoding apparatus according to claim 22, wherein said fourth partial decoder is also coupled with said first input line.

5

24. The multiple input diversity decoding apparatus according to claim 23, wherein said second partial decoder is also communicatively coupled with said fourth partial decoder.

10

25. The multiple input diversity decoding apparatus according to claim 24, wherein said first partial decoder is also communicatively coupled with said third partial decoder.

26. A multiple input diversity decoding apparatus, comprising:

means for inputting a first information segment;

means for inputting a second information segment;

means for iteratively decoding a first information segment received

5 via said means for inputting a first information segment; and

means for iteratively decoding a second information segment

received via said means for inputting a second information segment;

wherein said means for iteratively decoding a first information
segment and said means for iteratively decoding a second information
10 segment are communicatively coupled to each other and are configured to
perform an iterative decoding of information input into the multiple input
diversity decoder apparatus via said means for inputting a first information
segment and said means for inputting a second information segment.

27. The multiple input diversity decoding apparatus according to claim 26, wherein said means for iteratively decoding a first information segment comprises:

first means for partially decoding, coupled with said means for
5 inputting a first information segment; and

second means for partially decoding, coupled with said means for
inputting a first information segment;

wherein said first means for partially decoding and said second
means for partially decoding are communicatively coupled and are
10 configured to iteratively decode an information segment received via said
means for inputting a first information segment.

28. The multiple input diversity decoding apparatus according to claim 27, wherein said means for iteratively decoding a second information segment comprises:

third means for partially decoding, coupled with said means for inputting a second information segment; and

fourth means for partially decoding, coupled with said means for inputting a second information segment;

wherein said third means for partially decoding and said fourth means for partially decoding are communicatively coupled and are configured to iteratively decode an information segment received via said means for inputting a second information segment.